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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,462	10/21/2002	Shankara Bonthu Reddy	124611	4030

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EXAMINER

RAMIREZ, JOHN FERNANDO

ART UNIT	PAPER NUMBER
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3737

MAIL DATE	DELIVERY MODE
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12/13/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/065,462

Applicant(s)

REDDY ET AL.

Examiner

John F. Ramirez

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 7-13 and 16-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-13 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed on 10/01/07 have been fully considered. Accordingly, claims 8 and 17 have been canceled. Acknowledgement has been made to the statement of common ownership concerning the present application and the U.S. patent Boyd et al. (US 7,202,511), therefore the cited reference has been disqualified as prior art against the present application for purposes of 35 U.S.C. § 103(a).

Applicant's arguments with respect to claims 1-4, 7, 9-13, 16, 18-22 have been considered but are moot in view of the new ground(s) of rejection.

However, upon further consideration, the following action is provided in order to expedite the prosecution of this application.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4, 7, 9-13, 16, 18-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 10, 19 and 20 are directed to calculating duration of a representative cardiac cycle by using ECG data associated with image data using a data synchronization scheme and lacks clarity as to how is selected an even number of normally consecutive QRS complexes and therefore

is also unclear as to how is discarded the longest and shortest intervals and as to how is selected the middle interval.

Claims 1, 10, 19 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: How is the signal being validated and how is the underlying cardiac rhythm being analyzed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 9-13, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kaufman et al. (US 2003/0016852)** in view of **Vick et al. (US 4,115,864)**, **Arand et al. (US 5,628,326)**, **Griffin et al. (2005/0137484)**.

With respect to claims 1-4 and 9, Kaufman et al. teaches all the limitations of the claimed subject matter except for mentioning specifically the steps of calculating duration of the cardiac cycle by averaging at least a plurality of said N-1 intervals, a mean method including discarding at least one of a longest and a shortest interval of said N-1 intervals, and computing a mean of a remaining N-1 intervals indicative of the representative cardiac cycle and a median method comprising arranging said N-1 intervals; and selecting a middle interval of said N-1 intervals, said middle interval

indicative of the representative cardiac cycle so as to associate with a computed tomography imaging system scan.

However, averaging of cardiac cycle duration by using a median method and calculating duration of the cardiac cycle by a mean method including discarding at least one of a longest and a shortest interval of said N-1 intervals, and computing a mean of a remaining N-1 intervals indicative of the representative cardiac cycle, and said median method comprising arranging said N-1 intervals; and selecting a middle interval of said N-1 intervals, said middle interval indicative of the representative cardiac cycle so as to associate with a computed tomography imaging system scan are conventional in the art as evidenced by the teachings of Kaufman et al. (US 2003/0016852) in view of Vick et al. (US 4,115,864) (see figure 10, col. 26, lines 59-68, col. 27, lines 1-19, see Table I in columns 8 and 9), Arand et al. (US 5,628,326) (see abstract, fig. 7B), Griffin et al. (2005/0137484) (abstract, fig. 4, paragraphs 0031-0045).

Based on the above observations, for a person of ordinary skill in the art, modifying the method disclosed by Kaufman et al., with the above discussed enhancements would have been considered obvious in view of the conventionality of these enhancements.

Claims 13 and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kaufman et al. (US 2003/0016852)** in view of **Vick et al. (US 4,115,864)**, **Arand et al. (US 5,628,326)**, **Griffin et al. (2005/0137484)**, in view of **Lutz (US 5,832,051)**.

In reference to claim 13 Kaufman et al. teaches all the limitations of the claimed subject matter as applied to claims 1 and 10, except for mentioning specifically the step for analyzing underlying cardiac rhythm includes determination of a suitable heart rate.

Concerning claims 19-22, Kaufman et al. does not disclose the step for associating ECG waveform data with image data generated by an imaging system using a data synchronization scheme (see abstract).

However, the steps of analyzing underlying cardiac rhythm includes determination of a suitable heart rate and associating ECG waveform data with image data generated by an imaging system using a data synchronization scheme are conventional in the art as evidenced by the teachings of Lutz (US 5,832,051).

The Lutz patent teaches the steps of analyzing underlying cardiac rhythm includes determination of a suitable heart rate, and associating ECG waveform data with image data generated by an imaging system using a data synchronization scheme (see Abstract and Figures 2 and 3).

Based on the above observations, for a person of ordinary skill in the art, modifying the method disclosed by Kaufman et al., with the above discussed enhancements would have been considered obvious because such modifications would improve to select a trigger point along the cardiac cycle.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John F. Ramirez whose telephone number is (571) 272-8685. The examiner can normally be reached on (Mon-Fri) 7:00 - 3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JFR

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